

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
15 July 2004 (15.07.2004)

PCT

(10) International Publication Number  
**WO 2004/059284 A3**

(51) International Patent Classification<sup>7</sup>: **G01N 31/00**

(21) International Application Number:  
PCT/US2003/040520

(22) International Filing Date:  
19 December 2003 (19.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/435,601 20 December 2002 (20.12.2002) US

(71) Applicant (for all designated States except US): **DAKO-CYTOMATION DENMARK A/S** [DK/DK]; Produktionsvej 42, DK-2600 Glostrup (DK).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WINTHER, Lars** [DK/DK]; Tulipanhaven 80, DK-2765 Smørum (DK). **KEY, Marc** [US/US]; 290 Saddle Lane, Ojai, CA 93023 (US). **BUCHANAN, Kristopher** [US/US]; 4300 Shadowbrook Court, Fort Collins, CO 80526 (US). **FAVUZZI,**

**John** [US/US]; 5086 San Bernardo Place, Santa Barbara, CA 93111 (US). **GUGGENHEIMER, Benno** [US/US]; 608 Park Street, Fort Collins, CO 80521 (US).

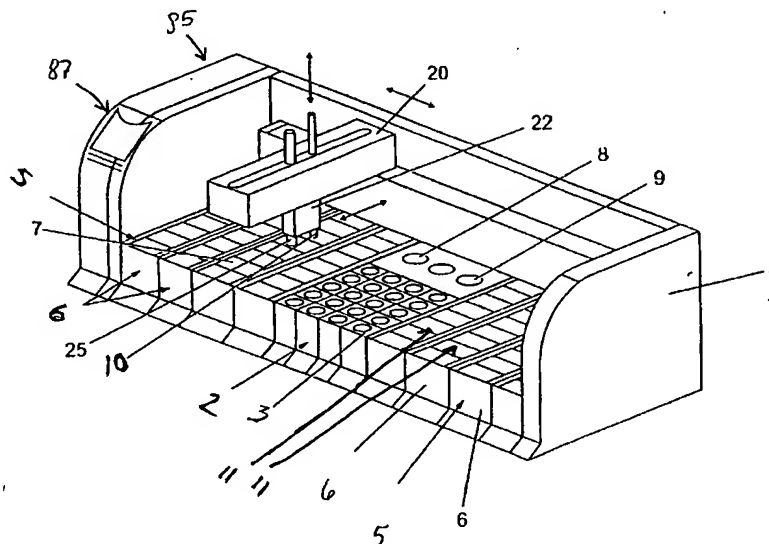
(74) Agent: **SANTANGELO, Luke**; Santangelo Law Offices, P.C., 125 South Howes, 3rd floor, Fort Collins, CO 80521 (US).

(81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT (utility model), PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,

[Continued on next page]

(54) Title: APPARATUS FOR AUTOMATED PROCESSING BIOLOGICAL SAMPLES



(57) Abstract: The present invention concerns an apparatus (1) for automatic processing at least one biological sample accommodated on a carrier member, such as a slide by (7) applying a predetermined amount of reagents in a predetermined sequence according to a processing protocol, said apparatus (1) comprising; a housing frame (4); at least one processing section for accommodating at least one slide (7), wherein the at least one processing section is provided within the housing (4); a hood cover protecting the at least one processing section in said housing (4); wherein the hood cover (40) completely encloses the processing section defining an interior space (120); and wherein the apparatus (1) further comprises climate control device (121) provided to control the environment within the interior space (120).

WO 2004/059284 A3



SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

**(88) Date of publication of the international search report:**  
25 November 2004

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/40520

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 31/00

US CL : 702/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 702/22, 19-32, 130, 132-136, 138, 140; 700/266, 276-278; 236/91A, 91C, 92R; 62/121,171,304; 435/46, 49, 50

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P — Y, P	US 2003/0124729 A1 (Christensen et al) 3 July 2003 (03.07.2003), paragraphs 33-36, Figure 2.	1, 2, 5-11, 20, 25, 33 ----- 3, 4, 12-19, 21, 27, 28, 30-32, 35, 36, , 38, 39
Y	US 4,115,861 A (Allington) 19 September 1978 (19.09.1978), column 2, lines 11-24; column, 7, lines 48-59.	1, 2, 4, 33
Y	US 4,510,619 A (Linner) 9 April 1985 (09.04.1985), column 7, lines 10-31.	12
Y	US 4,695,430 A (Coville et al) 22 September 1987 (22.09.1987), column 3, line 27 - column 5, line 25.	1, 14, 33
Y	US 5,382,511 A (Stapleton) 17 January 1995 (17.01.1995), Abstract, column 7, line 52 - column 3, line 5.	16-18
Y	US 6,335,208 B1 (Lowry) 1 January 2002 (01.01.2002), column 2, lines 31-43.	19
Y	US 2001/0006417 A1 (Modlin et al) 5 July 2001 (05.07.2001), paragraph 10.	1, 14, 15, 18, 33

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

21 July 2004 (21.07.2004)

Date of mailing of the international search report

18 OCT 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Marc S. Hoff

Telephone No. 703-305-0976

# INTERNATIONAL SEARCH REPORT

PCT/US03/40520

## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2001/0037072 A1 (Virtanen) 1 November 2001 (01.11.2001), paragraph 34.	30, 38
Y	US 2001/0055799 A1 (Baunoch et al) 27 December 2001 (27.12.2001), paragraph 28.	16, 17, 19, 28, 36
Y	US 2002/0009391 A1 (Marquiss et al) 24 January 2002 (24.01.2002), paragraphs 261, 262.	1, 14, 15, 18, 31, 33, 39
Y	US 2002/0176801 A1 (Giebeler et al) 28 November 2002 (28.11.2002), paragraphs 39, 40.	1, 14, 20, 33
Y	US 2002/0178547 A1 (Shofner et al) 5 December 2002 (05.12.2002), paragraph 28.	27, 35
Y, P	US 2003/0043963 A1 (Yamagami et al) 6 March 2003 (06.03.2003), paragraphs 40-52.	21
Y	GB 2218514 A (General Motors Corporation) 15 November 1989 (15.11.1989), Abstract.	12
Y	ES 2160486 A1 (Consejo Superior Investigaciones Cientif) 1 November 2001 (01.11.2001), Abstract.	13

# INTERNATIONAL SEARCH REPORT

PCT/US03/40520

## Continuation of B. FIELDS SEARCHED Item 3:

USPAT, DERWENT, JPO, EPO, IBM\_TDB

search terms: (process processing) biological sample, climate control, environmental control, air condition, sensor inlet outlet valve, hood, cover, high humidity, low humidity, prevent drying, microbial, discoloring, reagent, nuetural gas, oxygen, carbon dioxide, nitrogen, formamide